

WHAT THE INVENTION CLAIMED IS:

1. A multi-in-one connector structure used in a card reader comprising:
 - a housing, having an insertion slot for holding at least one memory card, and the top surface of the housing having a plurality of openings;
- 5 a plurality of first terminals, having a curved shape, each first end of the first terminals inserted into the insertion slot and extended into the openings from the rear end of the housing, and each second end of the first terminals extended downwardly out of the rear end of the housing and extended horizontally for mounting;
- 10 a plurality of second terminals, also having a curved shape, each first end of the second terminals inserted into the insertion slot and located under the first terminals from the rear end of the housing, and each second end of the second terminals extended downwardly out of the rear end of the housing and extended horizontally and intersected with the first terminals for mounting;
- 15 a plurality of third terminals, also having a curved shape, each first end of the third terminals inserted into the insertion slot and located under the second terminals from the rear end of the housing, and each second end of the third terminals extended downwardly out of the rear end of the housing and extended horizontally for mounting, and the second ends of the third terminals being shorter than the second ends of the first and second terminals, wherein, the second ends of the first terminals are positioned alternately to the second ends of the second terminals; and
- 20 a plurality of fourth terminals, each first end of the fourth terminals inserted into the insertion slot from the front end of the housing and closed to the third terminals, and each second end of the fourth terminals extended downwardly out of the rear end of the housing and extended horizontally for mounting;
- 25 thereby, when inserting a plurality of memory cards respectively into said insertion slot from said front end of said housing, a plurality of contacts of said memory cards can contact with said first terminals, second terminals, third terminals or fourth terminals respectively for accessing said memory cards.

2. The multi-in-one connector structure as claimed in claim 1, wherein said memory card can be a xD card, a SD/MMC card, a Smart Media card or a MS card.
3. The multi-in-one connector structure as claimed in claim 1, wherein said first terminals are contacting with said contacts of said SD/MMC memory card.
- 5 4. The multi-in-one connector structure as claimed in claim 1, wherein said second terminals are contacting with said contacts of said Smart Media memory card.
5. The multi-in-one connector structure as claimed in claim 1, wherein said third terminals are contacting with said contacts of said MS memory card.
- 10 6. The multi-in-one connector structure as claimed in claim 1, wherein said fourth terminals are contacting with said contacts of said xD memory card.
7. The multi-in-one connector structure as claimed in claim 1, wherein it further comprises at least one fastener and a mounting hole, wherein, said fastener is positioned inside said mounting hole and can be mounted on a printed circuit board
- 15 for fastening said housing.
8. The multi-in-one connector structure as claimed in claim 1, wherein it further comprises a write protection device installed in said housing at one end of said fourth terminals for preventing from data being written into said Smart Media memory card.
- 20 9. The multi-in-one connector structure as claimed in claim 8, wherein said write protection device further comprises a plurality of fifth terminals.
10. The multi-in-one connector structure as claimed in claim 1, wherein said housing further comprises a first cavity and a first anti-missing-inserting device, wherein, said first cavity is positioned left-above said housing and said first
- 25 anti-missing-inserting device is positioned inside said first cavity for preventing said Smart Media memory card from being inserted incorrectly.

11. The multi-in-one connector structure as claimed in claim 1, wherein said housing further comprises a second cavity, a third cavity and a blocker; wherein, said second cavity and said third cavity are positioned left-above said housing and said blocker further comprises a handle portion and a ladle portion, while
5 assembling, said handle portion can be positioned inside said third cavity, and then said ladle portion can be positioned inside said second cavity for fastening said SD memory card.

12. The multi-in-one connector structure as claimed in claim 1, wherein said housing further comprises a fourth cavity and a first card detecting device; wherein,
10 said fourth cavity is positioned right-above said housing and further comprises a partition portion and said partition portion having a plurality of fifth cavities and said first card detecting device further comprises a first detecting apparatus and a second detecting apparatus; wherein, said first detecting apparatus comprises a sixth terminal and a seventh terminal; wherein, said sixth terminal is extended
15 downwardly and extended upwardly and then extended horizontally, and said seventh terminal is extended left and extended downwardly and then extended upwardly; said second detecting apparatus further comprises a eighth terminal, wherein, said eighth terminal has two forked end portions with different length and a protrusion portion is respectively positioned at said about central portion of each
20 end portions, and said sixth terminal, said seventh terminal and another end of said eighth terminal are protruded out from said housing and extended downwardly and then extended upwardly for coupling to said second contacts; during assembling, said sixth terminal and said seventh terminal could be positioned respectively at both sides of said partition portion, and said eighth terminal could be positioned
25 left-above said seventh terminal and said protrusion portion engaged inside said concave portion of said partition portion to prevent said eighth terminal contact with said sixth terminal and said seventh terminal; thereby, while said SD memory card or said MMC memory card inserted into said slot, said connector could detect said inserting of said SD memory card or said MMC memory card.

13. The multi-in-one connector structure as claimed in claim 1, wherein it further comprises a card detecting and writing device positioned below said third terminals, and further comprises a detecting part and a write-protecting part; wherein, said detecting part is a hollow portion and has a first metal sheet 5 positioned inside said hollow portion and one end of said first metal sheet has a protrusion portion, and said write-protecting part is also a hollow portion and has a second metal sheet positioned inside said hollow portion; another end of said detecting part and write-protecting part are protruded out from said housing and extended downwardly and then extended horizontally so as to couple to said 10 second contacts; thereby, while said SD memory card or said MMC memory card inserted into said slot, said connector could detect said inserting of said SD memory card or said MMC memory card, and if said write-protecting switch of said SD memory card or said MMC memory card is opened, said write-protecting part will contact with said detecting part, so as to allow writing data to said SD memory 15 card or said MMC memory card.